



# **CMMI**

## **Current State**

### **and Future Plans**

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# Introduction

## CMMI Adoption

- CMMI Appraisal Results
- CMMI Adoption Trends

## CMMI Current Activities

- CMMI-AM (CMMI Acquisition Module)
- CMMI Product Suite v1.2 Update



# Current Appraisal Synopsis

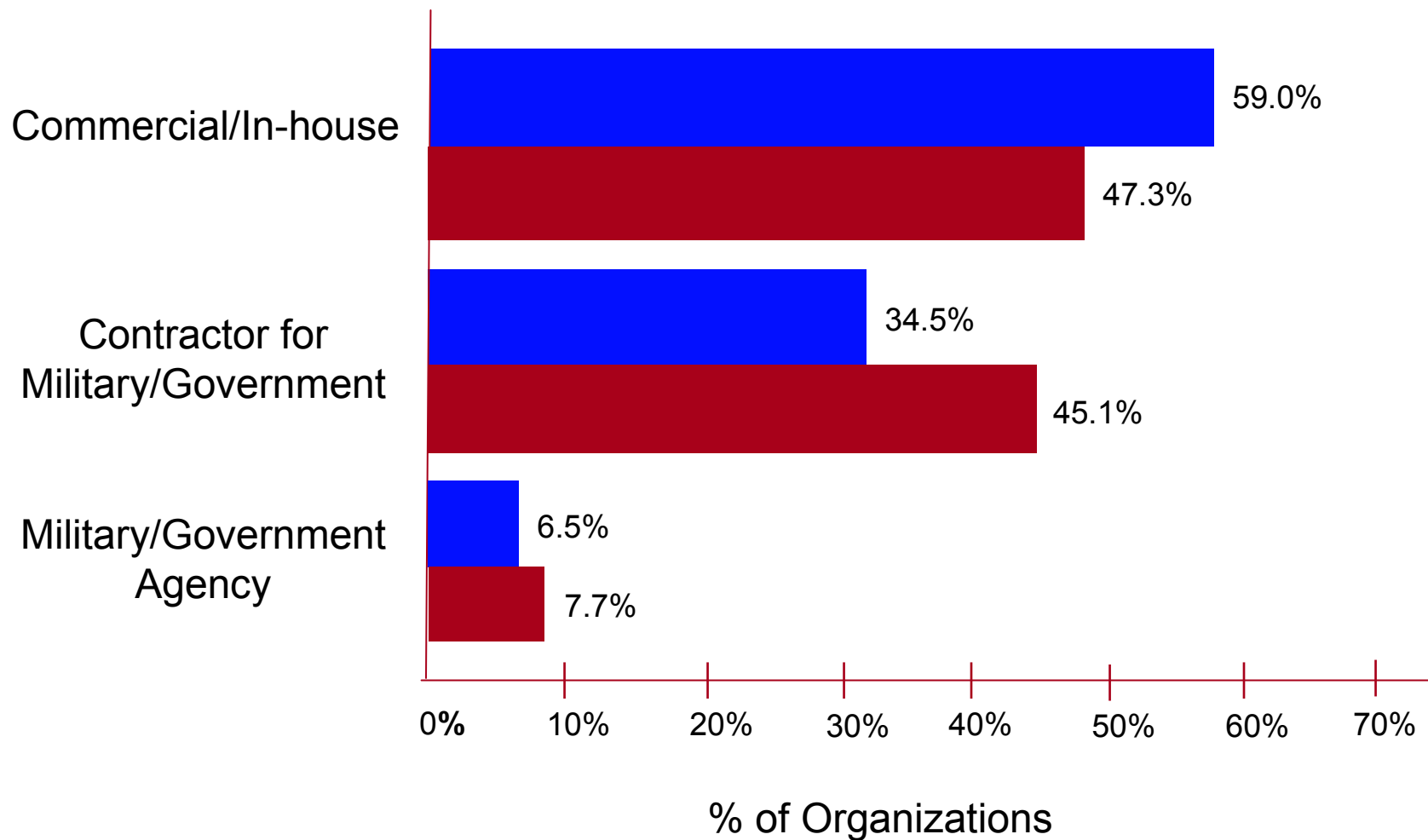
**Based on SCAMPI v1.1 Class A appraisals  
conducted since the April 2002 release through  
August 2004**

- **424 appraisals**
- **385 organizations**
- **206 participating companies**
- **33 reappraised organizations**
- **1,704 projects**
- **54.8% Non-USA organizations**

**For more information go to: [http://www.sei.cmu.edu/sema/profile\\_cmml.html](http://www.sei.cmu.edu/sema/profile_cmml.html)**



# Reporting Organizational Types

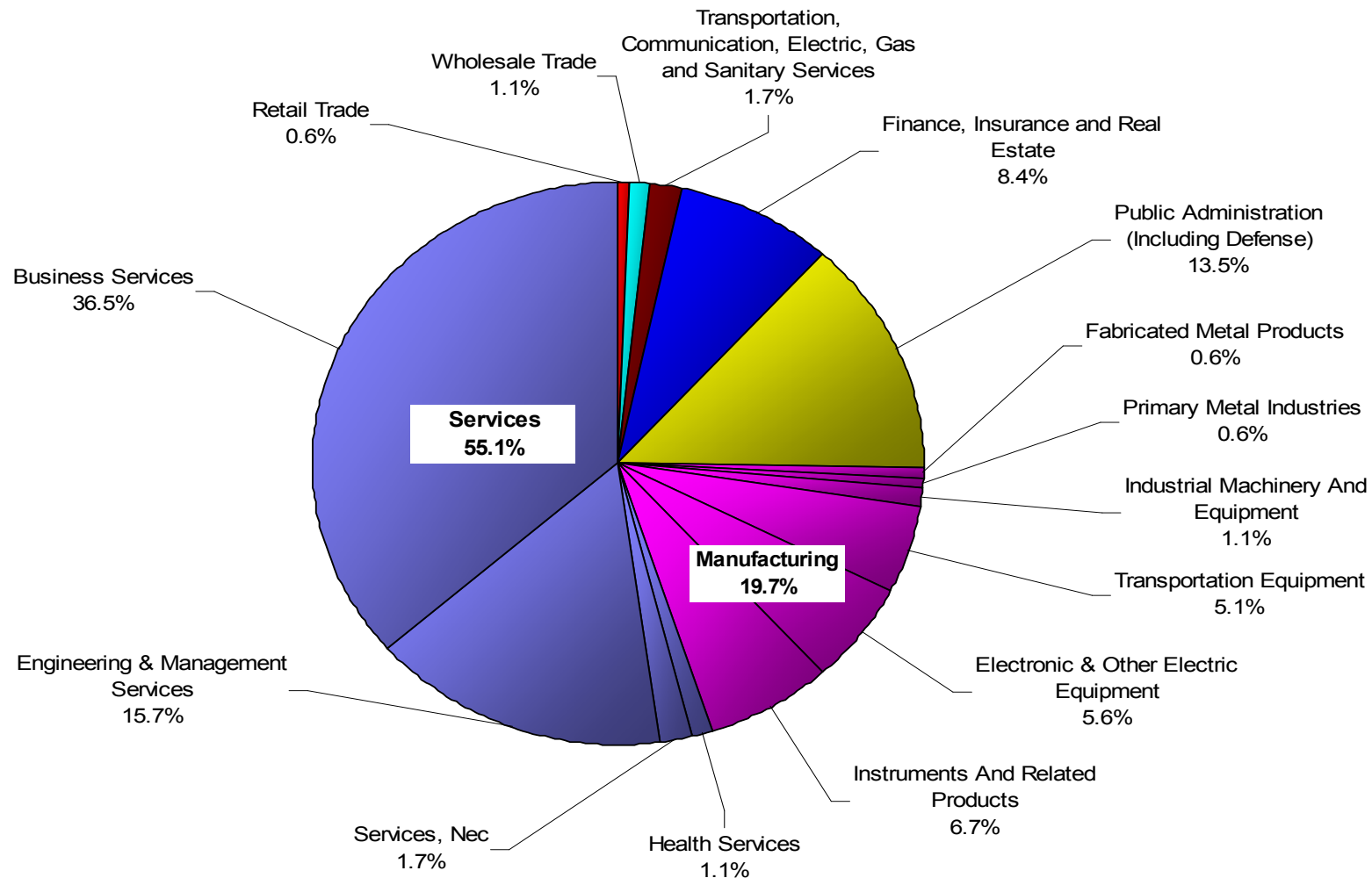


Blue ■ 385 organizations 2004  
Red ■ 91 organizations 2003



# Organizations Type

Based on Primary Standard Industrial Classification (SIC) Code

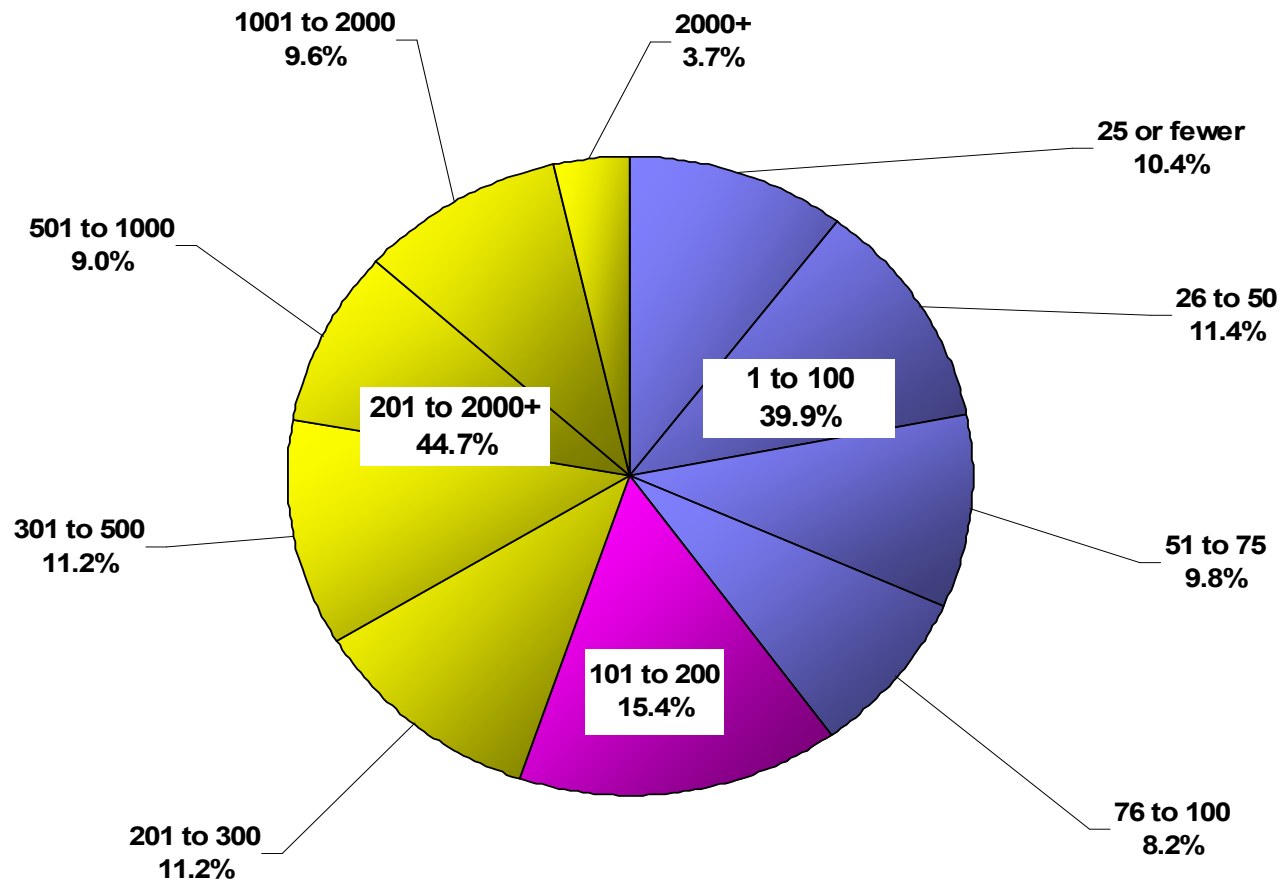


Based on **178** organizations reporting SIC code. For more information visit: <http://www.osha.gov/oshstats/sicser.html>



# Organizational Size

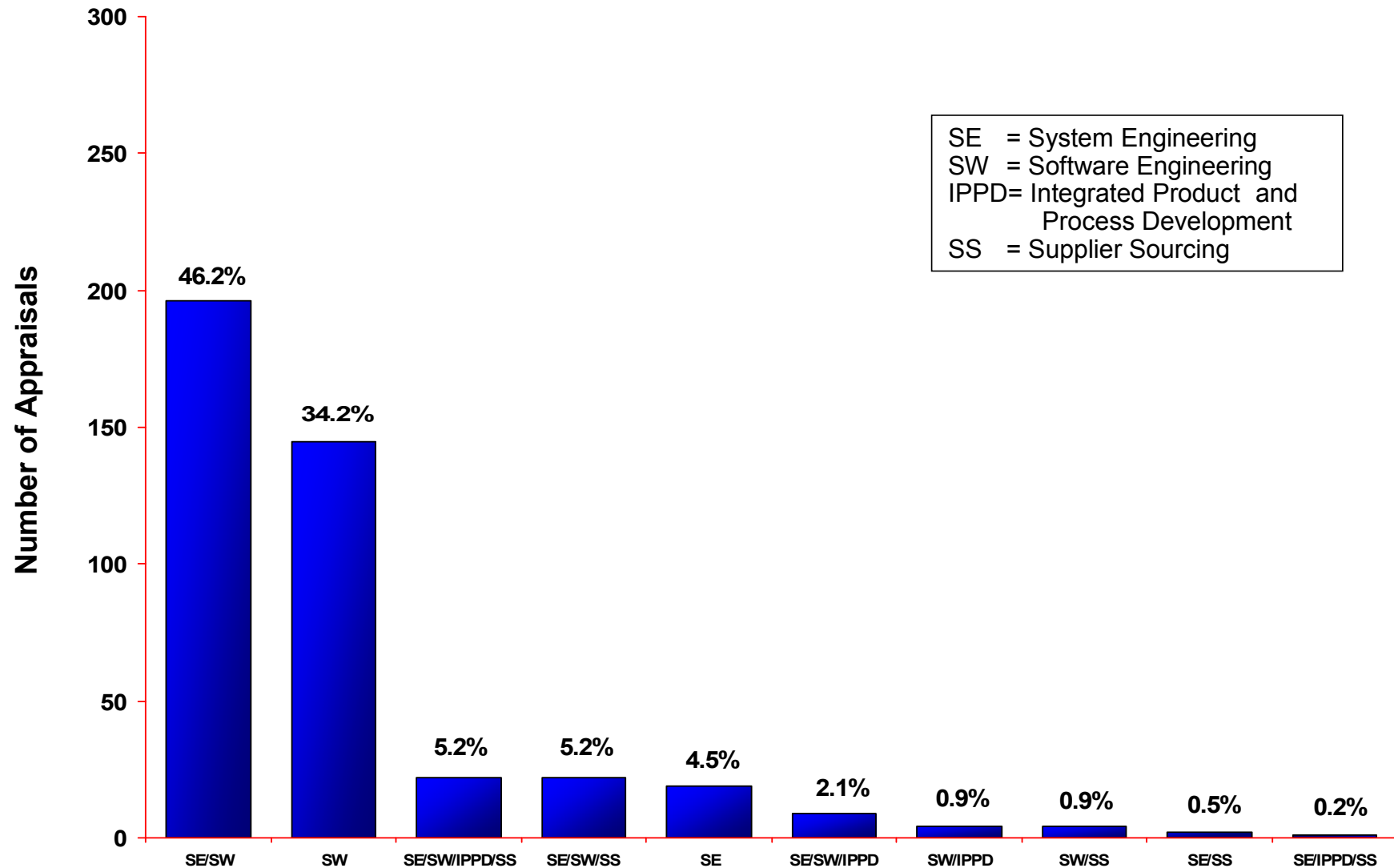
Based on the total number of employees within the area of the organization that was appraised



Based on **376** organizations reporting size data



# Disciplines Selected for Appraisals

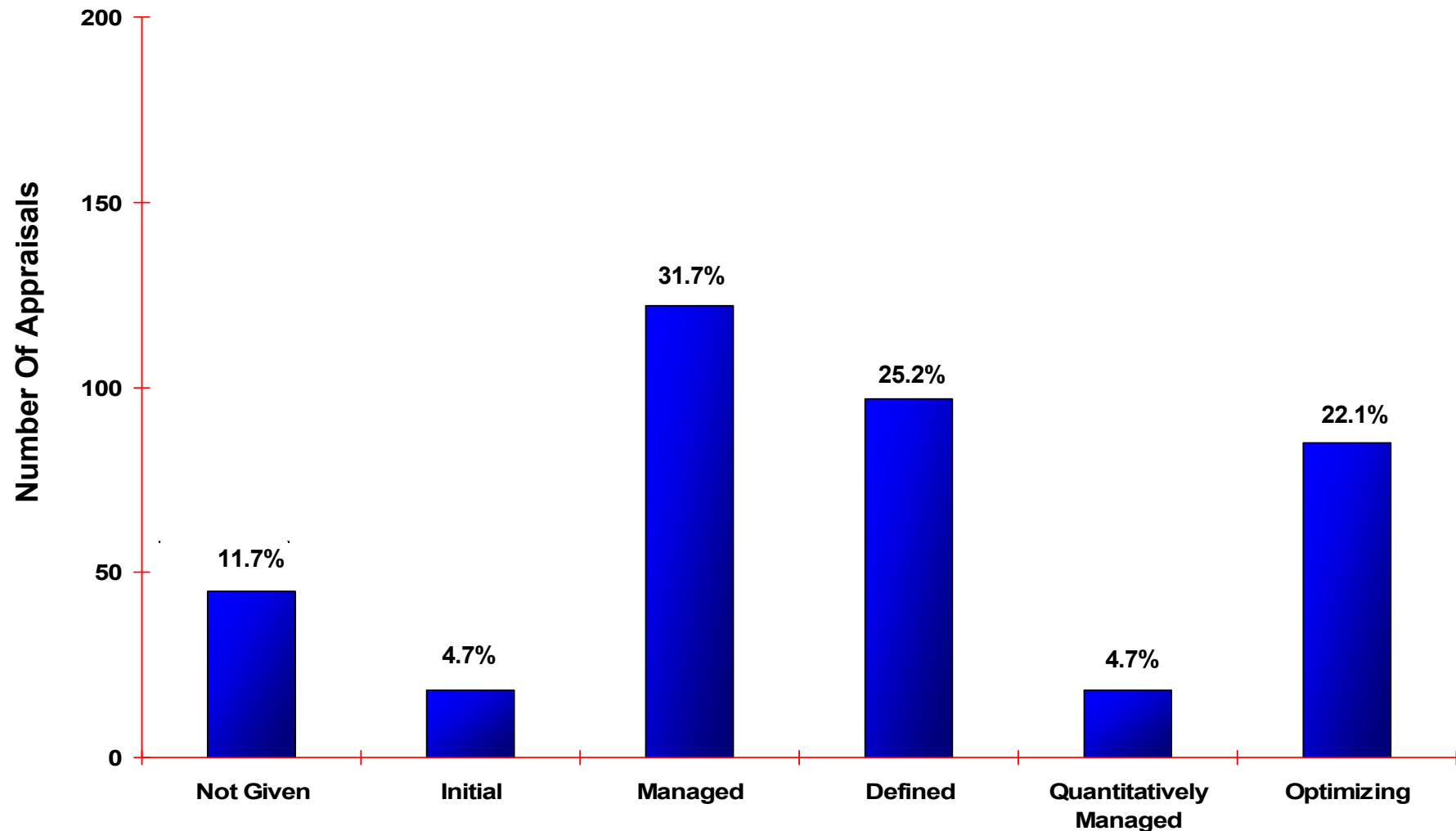


Based on 424 appraisals reporting coverage





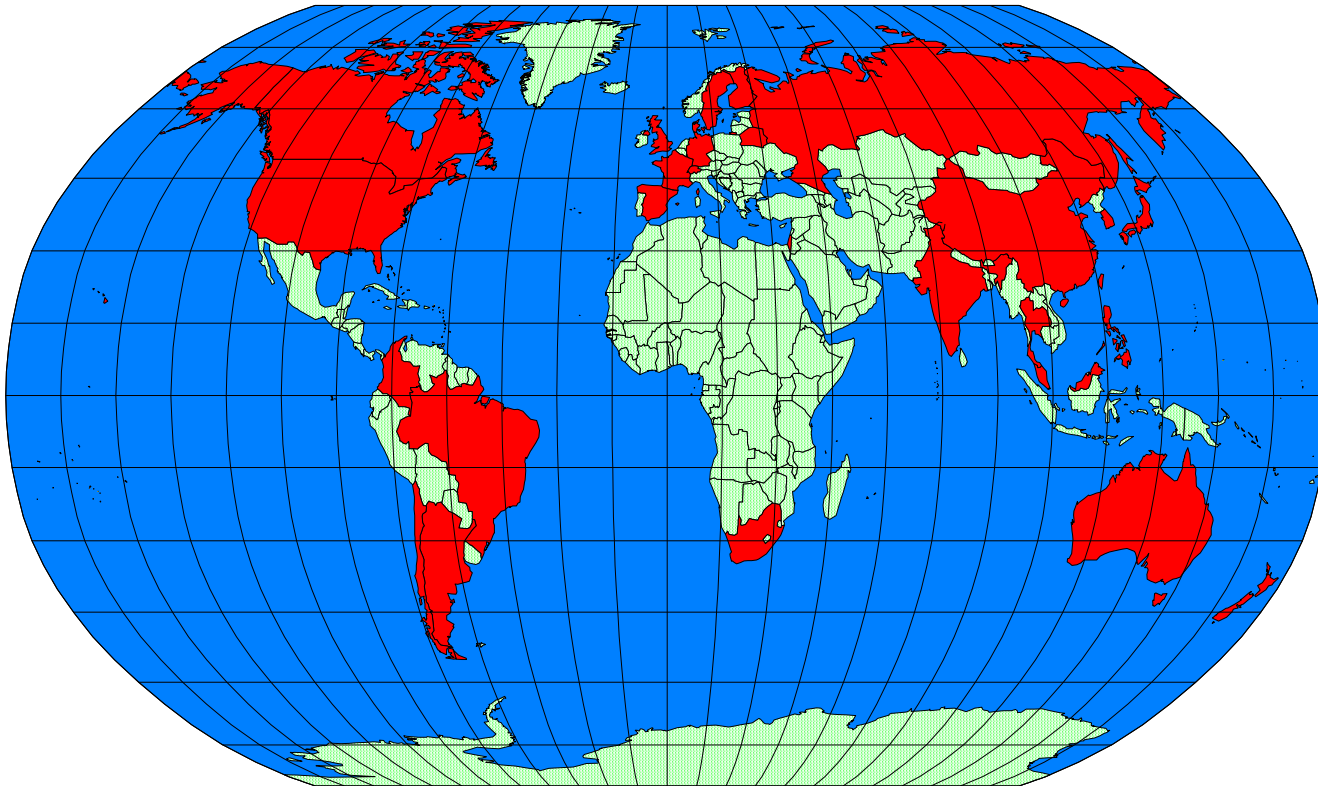
# Maturity Profile by All Reporting Organizations



Based on most recent appraisal of **385** organizations



# Countries where Appraisals have been Performed and Reported to the SEI

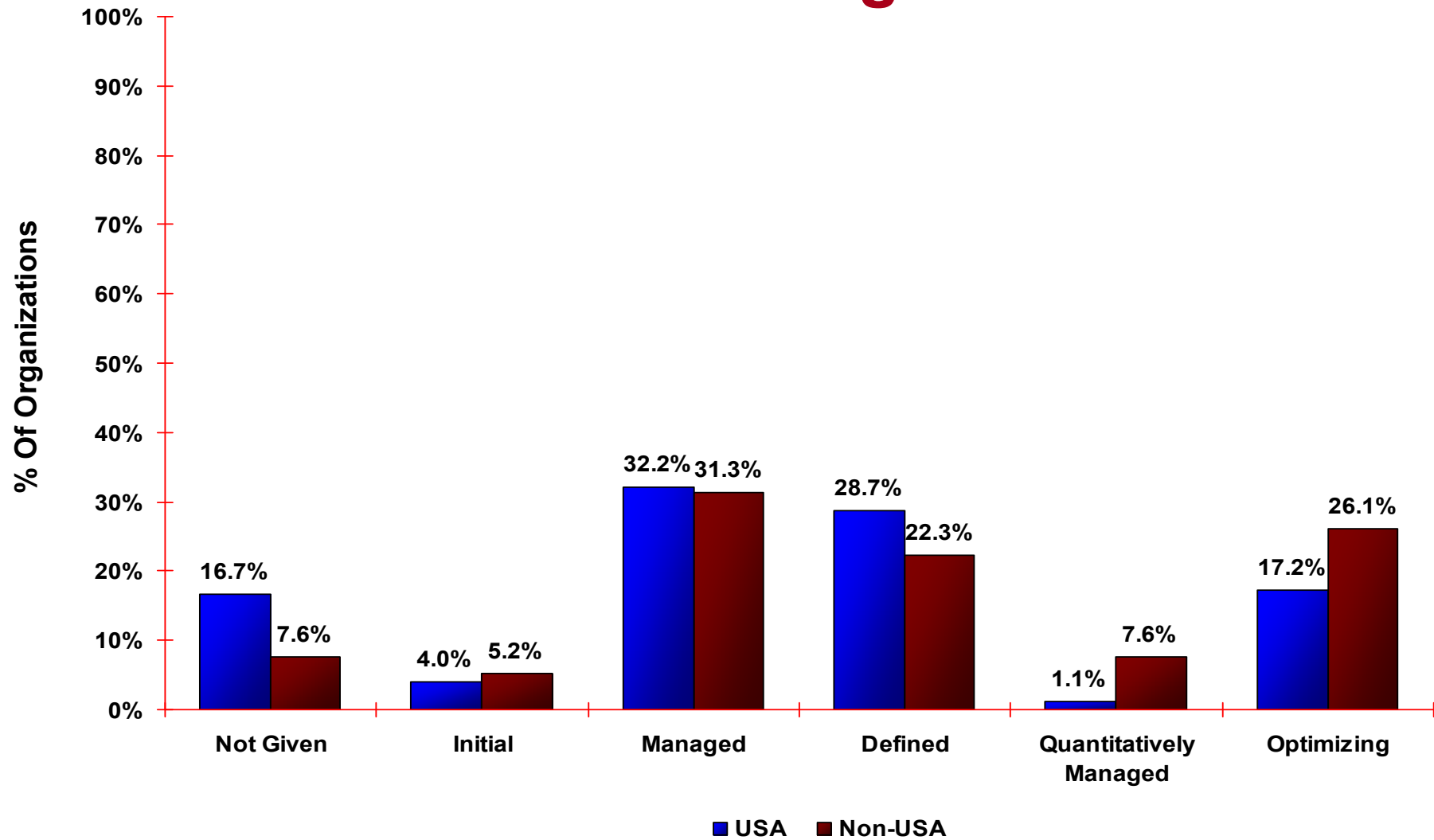


Argentina	Australia	Belarus	Brazil	Canada	Chile	China
Colombia	Denmark	Finland	France	Germany	Hong Kong	India
Israel	Japan	Korea, Republic of	Malaysia	New Zealand	Philippines	Russia
Singapore	South Africa	Spain	Sweden	Switzerland	Taiwan	Thailand
United Kingdom	United States					

Red country name: New additions with this reporting since Nov. 2003



# Maturity Profiles by All Reporting USA and Non-USA Organizations

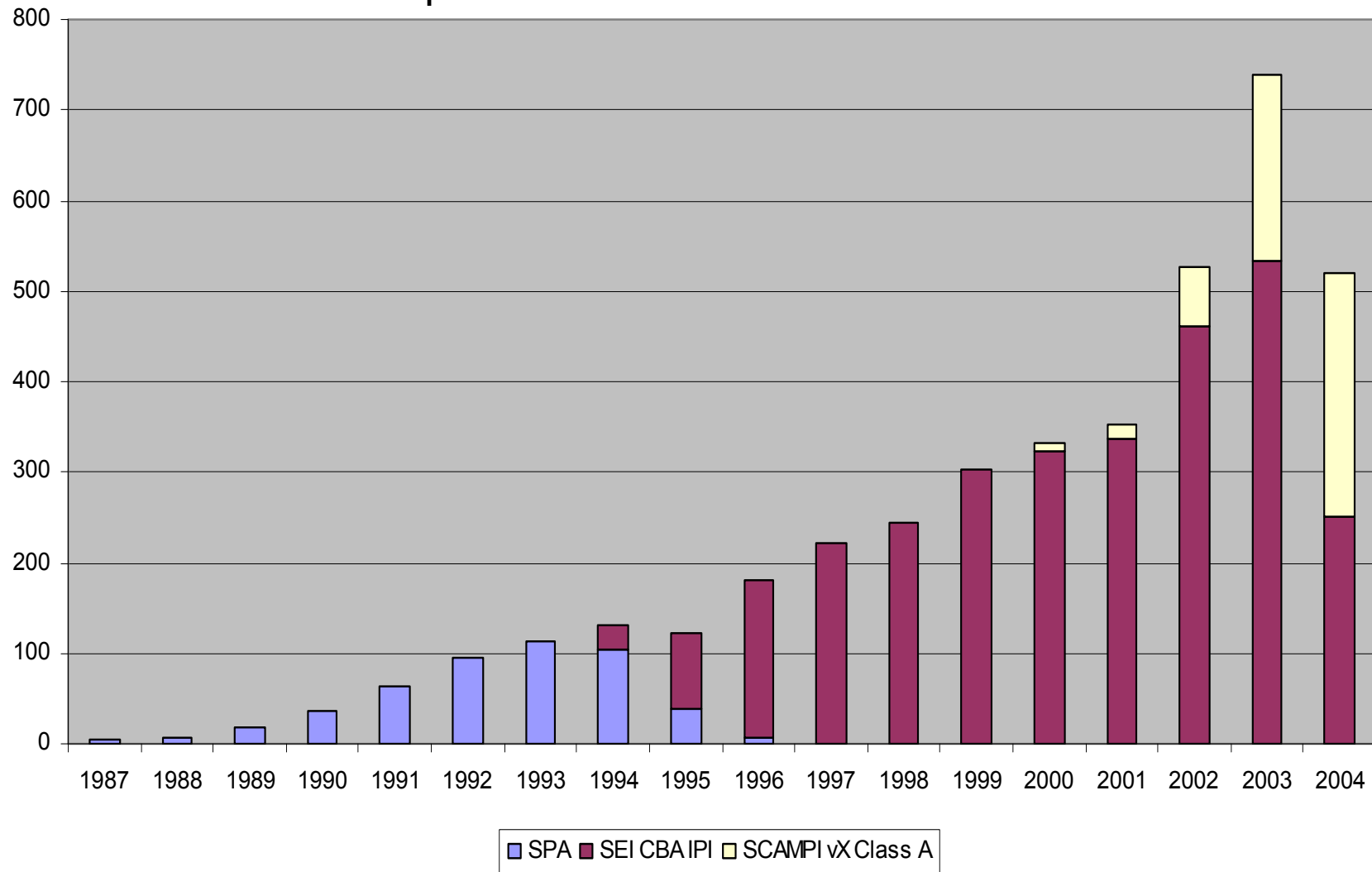


Based on 174 U.S. organizations and 211 Non-USA organizations



# Number of Appraisals Conducted by Year

Reported as of 1 November 2004

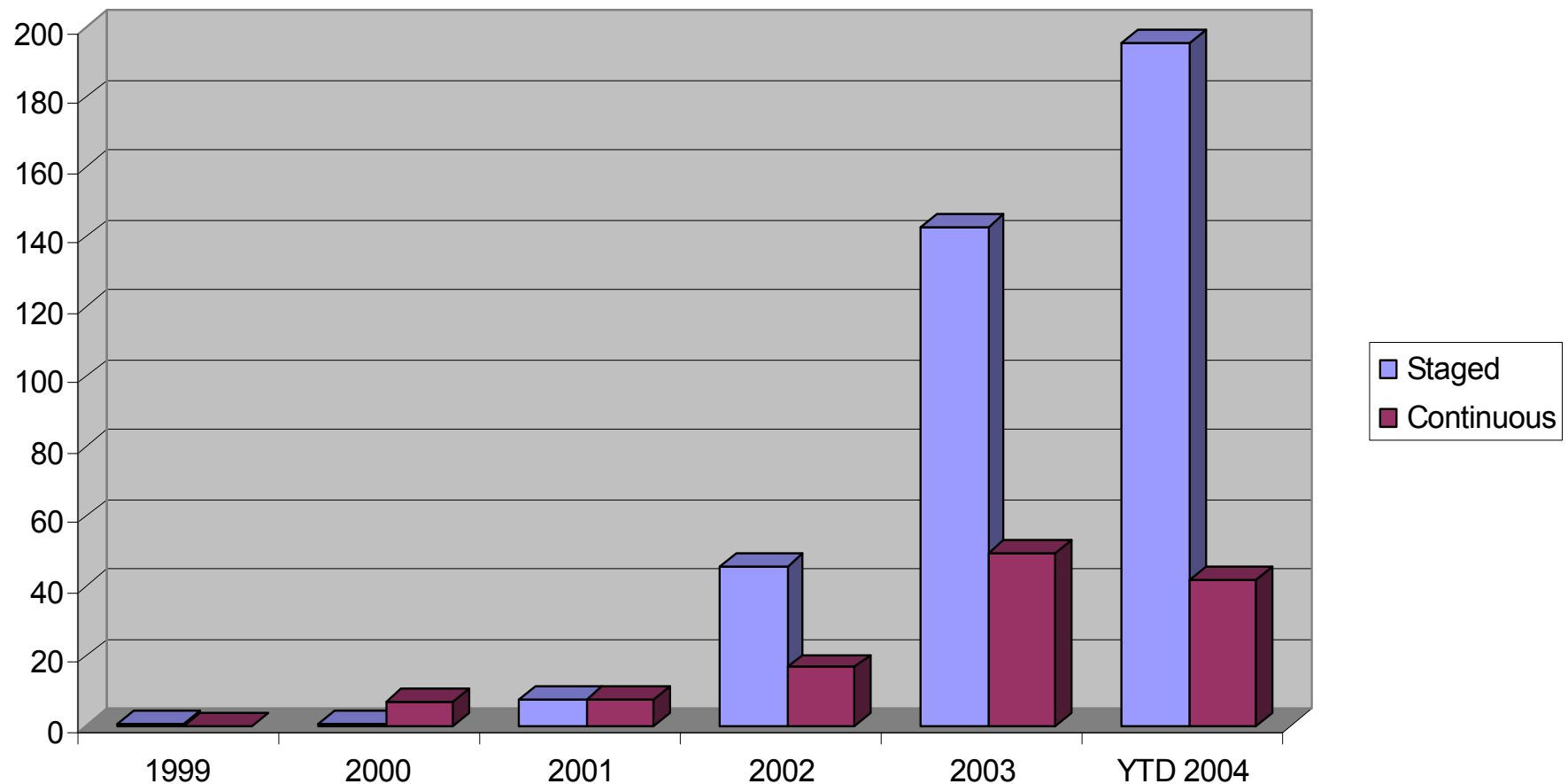




# Number of SCAMPI v1.x Appraisals Conducted by Year by Model Representation\*

Reported as of 1 November 2004

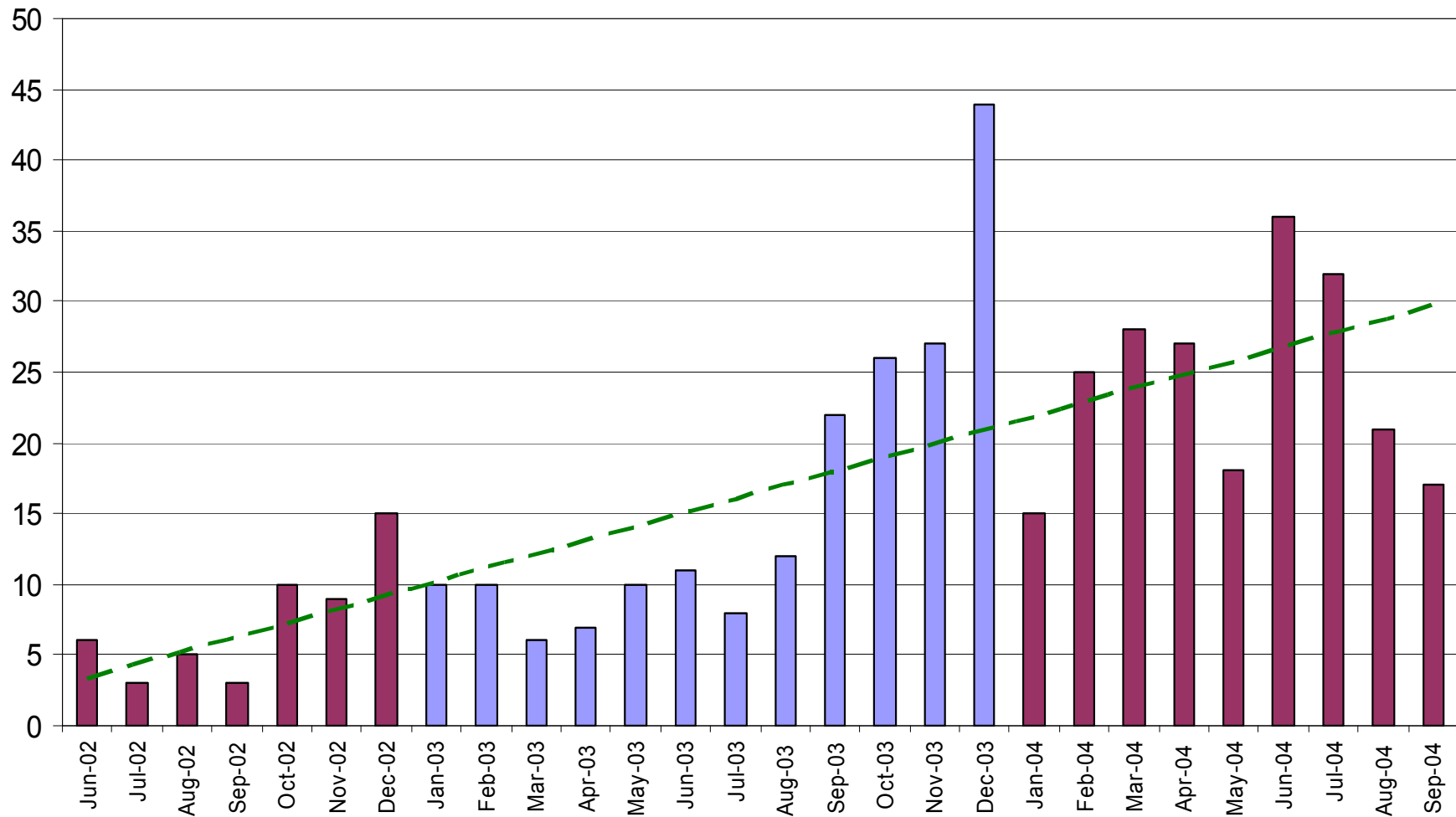
\*Where Representation is reported





# Number of SCAMPI v1.1 Appraisals Conducted by Month

Reported as of 1 November 2004





# Appraisal Results Summary

**424 appraisals have been reported to the SEI in 27 months**

**Commercial organization percent is increasing compared to the government contractor community**

- **higher percentage of the commercial organizations are outside of the U.S.A.**
- **higher percentage of the government contractors are located in the U.S.A.**

**Of U.S. organizations, the services and manufacturing industries reported most appraisals**

**Compared to the early reports of the SW-CMM maturity profile, the early data reflects a relatively more mature CMMI® profile**



# **CMMI Transition Status<sub>1</sub>**

Reported as of 30 September 2004

## **Training**

**Introduction to CMMI – 24,091 trained**

**Intermediate CMMI – 1,166 trained**

**Introduction to CMMI Instructors – 349 trained**

**SCAMPI Lead Appraisers - 470 trained**

## **Authorized**

**Introduction to CMMI V1.1 Instructors – 219**

**SCAMPI V1.1 Lead Appraisers – 344**





# **CMMI Transition Status<sub>2</sub>**

Reported as of 30 September 2004

## **SEI (Transition) Partners**

### **123 Introduction to CMMI Partners**

**105 commercial offerors**

**15 internal-use only**

**3 government-use only**

### **172 SCAMPI Appraiser Services Partners**

**158 commercial offerors**

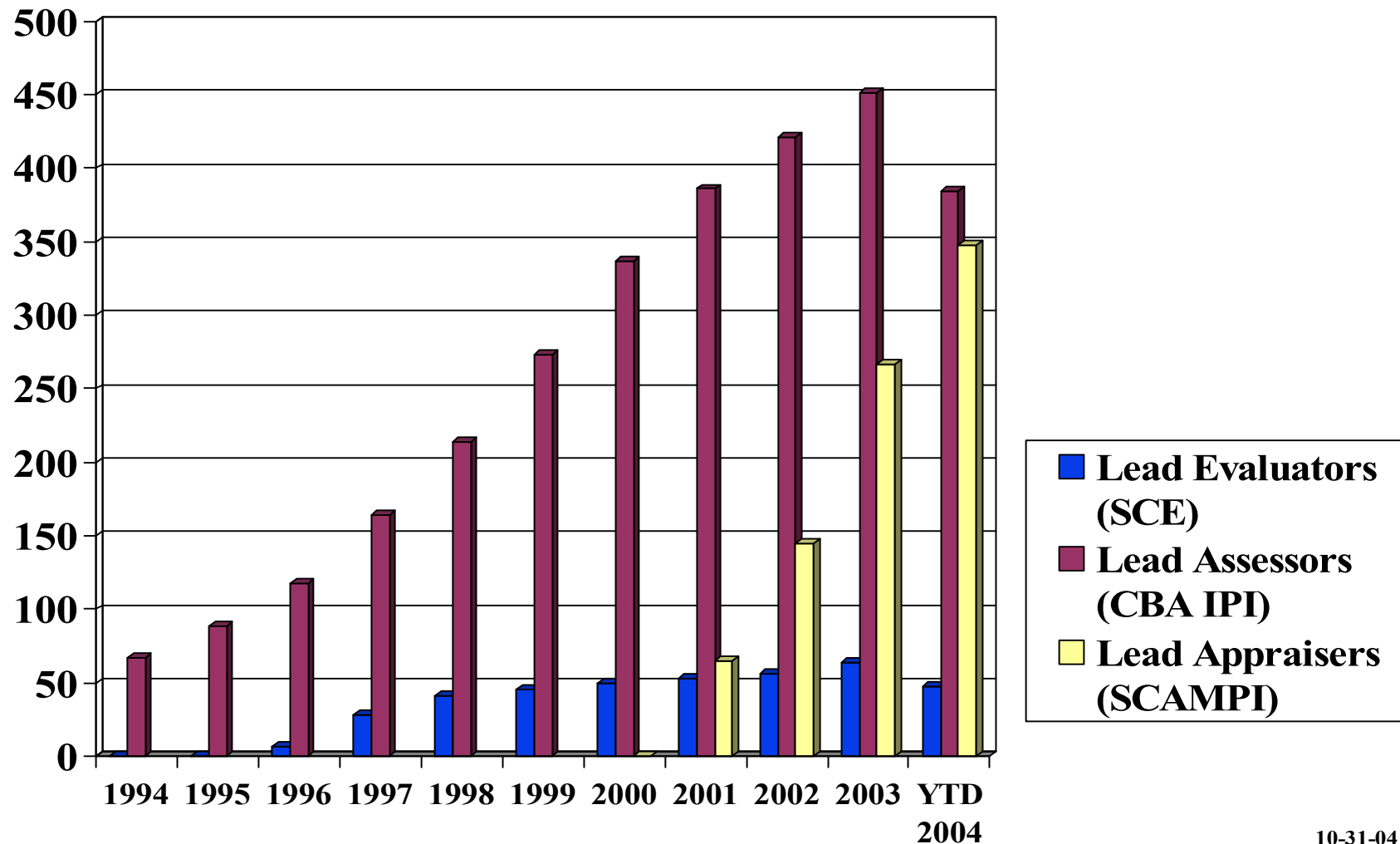
**10 internal-use only**

**4 government-use only**

For more info go to: <http://www.sei.cmu.edu/partners>



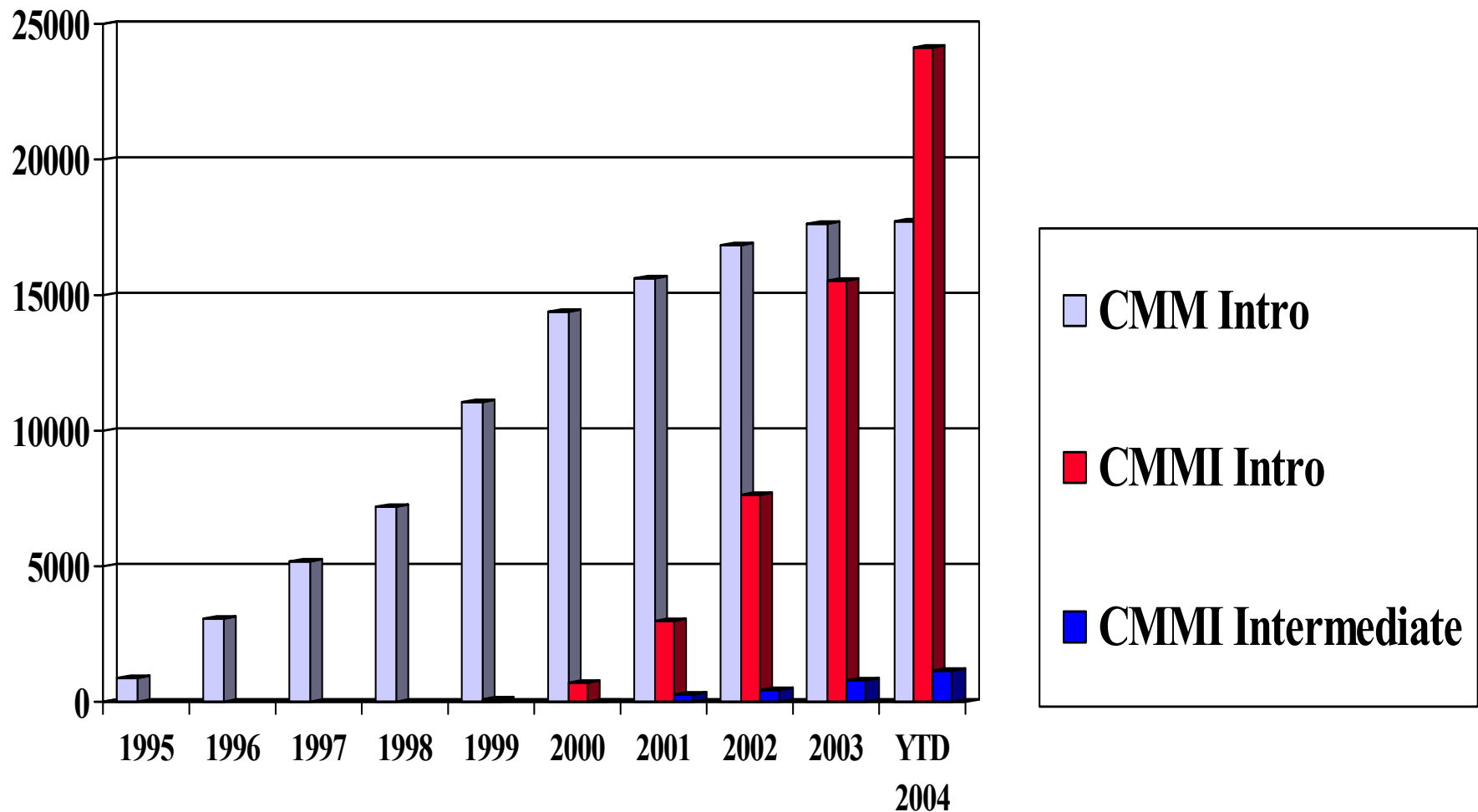
# Number of Lead Appraisers Authorized (Cumulative) Reported as of 31 October 2004



10-31-04



# Intro to the CMM and CMMI Attendees (Cumulative) Reported as of 30 September 2004



9-30-04



# **CMMI Adoption Trends: Website Visits**

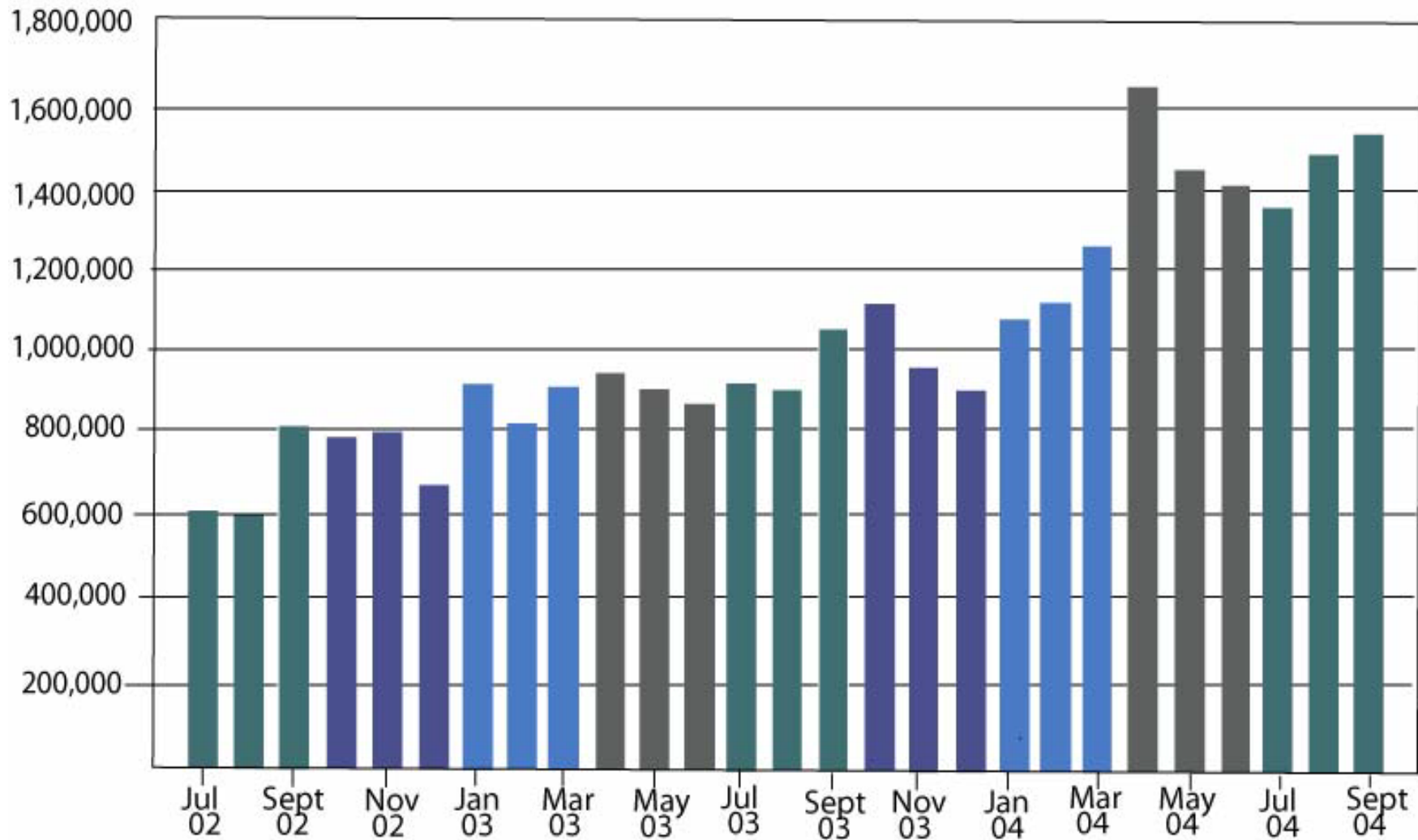
**There were 392 organizations that visited the CMMI website more than 200 times during September 2004**

- **56 defense contractors**
- **9 DoD activities**
- **28 government agencies**
- **253 commercial companies**
- **46 universities**



# CMMI Adoption Trends: Website Visits

*Total number of page views per month*





# Performance Results Summary

Reported as of 12 November 2004

**23 organizations reported credible quantitative evidence in conference presentations and via direct communication with the SEI**

- initial CMMI benefits and ROI report, October 2003
- CMMI Technology Conference, November 2003
- SEPG and European SEPG, March and June 2004
- confidential communication with SEI

**14 of these organizations reported results from which we can show percent change over time**

**Future results will come from**

- externally conducted case studies
- collaborative case studies
- community benchmarking



# Performance Results Summary<sub>2</sub>

Reported as of 12 November 2004

Improvements	High	Low	Median	# of data points
<b>Cost</b>	<b>83%</b>	<b>5%</b>	<b>26%</b>	<b>8</b>
<b>Schedule</b>	<b>90%</b>	<b>15%</b>	<b>55%</b>	<b>10</b>
<b>Productivity</b>	<b>75%</b>	<b>11%</b>	<b>28%</b>	<b>4</b>
<b>Quality</b>	<b>72%</b>	<b>33%</b>	<b>47%</b>	<b>6</b>
<b>Customer Satisfaction</b>	<b>55%</b>	<b>10%</b>	<b>33%</b>	<b>3</b>
<b>Return on Investment</b>	<b>13 : 1</b>	<b>2 : 1</b>	<b>3.8 : 1</b>	<b>4</b>



# CMMI Acquisition Module (CMMI-AM)

Draft released February 2004

Focuses on **effective acquisition activities and practices** that are implemented by first-level acquisition projects (e.g., System Project Office/Program Manager)

Acquisition practices drawn and summarized from existing sources of best practices

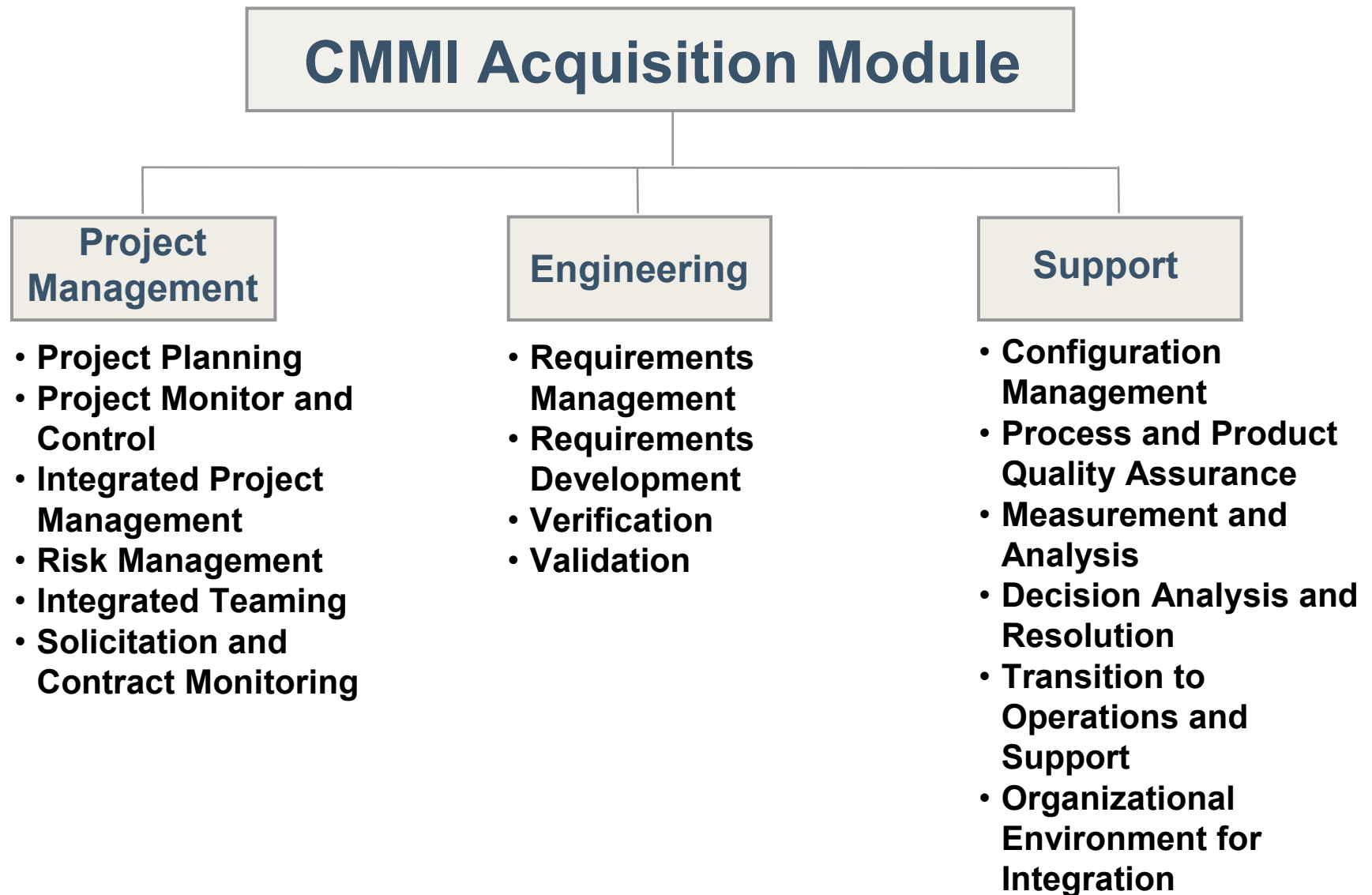
- Software Acquisition Capability Maturity Model (SA-CMM)
- Capability Maturity Model Integration (CMMI)
- FAA Integrated Capability Maturity Model (iCMM)
- Section 804

Intended to be used in conjunction with the CMMI as an acquisition “lens” for interpreting the CMMI in acquisition environments





# CMMI Acquisition Module





# **CMMI-AM Phase III Progress**

- **pilot program assessments complete.**
  - 8 pilots conducted by OSD
- **draft report prepared by OUSD; reviewed by assessment team members who had participated on more than one assessment (10 people)**
- **report, including recommendations, delivered to OUSD management and CMMI-AM authors on October 8th**
- **report, including recommendations for CMMI-AM Update, to be presented to Steering Group and Sponsor at November meeting**



# **CMMI-AM Pilot Results: Positive**

- **no show stoppers to prevent immediate use when accompanied with training**
- **applicable to all life cycle phases, applications, and program size within pilot study with appropriate interpretation**
- **more robust process areas: Project Planning, Project Monitoring and Control, Risk Management, Requirements Management, and Requirements Development**



# **CMMI Version 1.2 Plan**

## **Prime Rule: Maintain CMMI Stability**

- **No Major Changes in v1.2 that will affect previous appraisals**

**New Framework Architecture**

**New Content Opportunities**

**Single Course Training**

**Model Simplifications**



# CMMI v1.2 Architecture

- **Revised (internal) Architecture will allow better accommodation of content**
  - In CMMI v1.1, “IPPD” and “SS” are not “disciplines” in the same sense as SE and SW
    - Defined as CMMI-SE/SW/IPPD/SS because of architecture constraints
  - **V1.2 Architecture will allow proper treatment of focus elements such as IPPD and SS, and the easy addition of other elements such as safety or security, for example**
    - Existing PAs can now be changed when adding such additional focus elements
  - **New designation: CMMI-SE/SW+IPPD+SS**



# Additional Content Opportunities

New v1.2 architecture allows additional constructs

- new framework will support Services and Operations content, such as maintenance/support, help desk, etc via new **“services constellation”** of CMMI
  - proposal for “Services” Constellation already received by CMMI Steering Group
- allows present **“development constellation”** to be better structured
  - i.e. CMMI-SE/SW+IPPD+SS
  - allows for additional focus elements such as safety or security
    - NOTE these are NOT disciplines in the sense of SE and SW
- additional content will follow release of v1.2



## **“Single Book, Single Course” Strategy**

- **CMMI v1.2 will consolidate both staged and continuous representations**
- **single course for “Intro to CMMI” has been created**
  - **first public offering here last week**
    - **1/3 of “staged” proponents converted to “continuous”**
  - **new instructors will only be trained in single course**
  - **existing instructors will receive upgrade training**
  - **staged and continuous courses will be available until planned upgrade training is complete**
- **SCAMPI refinements will complement the strategy**



# Model Simplifications

## To address size and complexity

- “single book” approach to model
  - not eliminating staged or continuous, just packaging better
- eliminate concept of advanced practices.
- eliminate concept of common features.
- improve model-method interactions for artifacts.
- looked at combining select PAs such as VAL & VER
  - detailed analysis revealed that no PA combinations had validity or merit

## To address hardware design applicability

adding “hardware” amplifications to provide better coverage of hardware design in CMMI

- NOT adding “HW” discipline! Design of hardware is already covered in CMMI, just not as well as we would have liked





# **CMMI v1.2 Schedule**

- **several thousand change requests were analyzed since January 2004**
  - **content, clarifications, errata, etc**
- **development of Change Packages (CPs) underway**
- **Configuration Control Board (CCB) starts meeting now**
  - **approve CPs for development into Implementation Packages (IPs)**
  - **training update will occur to match model**
- **pilot v1.2 in early FY06 (i.e. Fall 2005)**
- **release v1.2 late FY06 (i.e. June 2006)**
- **Release date of “Services” constellation will follow within 3 to 6 months**



# Summary

**CMMI is in widespread adoption**

- **more people CMMI-trained in past 2-1/2 years than in 12 years of SW-CMM**
- **CMMI Appraisal results flowing fast & furious**
  - **1<sup>st</sup> USAF site achieved CMMI-SE/SW Level 5**
    - **Warner Robins AFB, Oct 2004**

**CMMI is already demonstrating substantial ROI and measurable benefits to adopting organizations**

**CMMI v1.2 will bring needed, but gentle, improvements**

**CMMI v1.2 “Services” constellation will provide full life cycle and enterprise coverage**

**<http://www.sei.cmu.edu/cmmi>**